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SEMICONDUCTOR DEVICE FORMED BY IN-SITU MODIFICATION OF DIELECTRIC LAYER AND RELATED METHODS

Abstract

Disclosed is a semiconductor device with a continuously-deposited dielectric layer having different etch resistances through its depth and methods of manufacturing such a device. Specifically, differing etch resistances in the dielectric layer are obtained by modifying the composition of the dielectric layer, the deposition conditions, or both, during deposition of the dielectric layer. The disclosed device and methods eliminate the depth and resistance variations inherent in time-based etch techniques and enable the deposition of a dielectric layer with varying etch resistances in a single deposition step.